

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)
)
Ocean County, New Jersey)
)
For Waiver of Rule Section 90.209(b) to)
Permit Wide Band Operations on Trunked)
Public Safety Pool Service Stations WIL552)
and WPXC650)

To: Chief, Public Safety and Homeland Security Bureau

WAIVER REQUEST

OCEAN COUNTY, NEW JERSEY

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Table of Contents

Summary	iii
Waiver Standard	2
Background	3
Narrowbanding the UHF T-Band Channel 20 Facilities is Impractical Due to Continued Interference from Tropospheric Ducting.	3
The Channel 20 UHF T-Band System is a Complex System and it is not Cost Effective to Narrowband.	6
Ocean County's Only Reasonable Alternative is to Migrate its Public Safety Communications System from the Channel 20 UHF T-Band Allotment to the 700 MHz Band.	6
Narrowbanding the Channel 20 UHF T-Band is Not a Good Use of \$600,000 in Public Monies.	9
Conclusion.	11

Summary

Ocean County, New Jersey (“Ocean County” or the “County”), the second largest county in the State of New Jersey, is requesting a waiver of Section 90.209(b) of the Commission’s rules to permit continued wide-band operations on its Channel 20 UHF T-Band frequencies authorized under the licenses for Trunked Public Safety Pool Service stations WIL552 and WPXC650 until the fifth anniversary of the grant of its licenses in the 700 MHz public safety band.

Ocean County’s request for rule waiver meets the requirements of Section 1.925 of the Commission’s Rules due to its unique circumstances caused by tropospheric ducting which renders the County’s existing UHF T-Band public safety communications system (and the Channel 20 frequency allotment in particular) unusable for hours at a time. During times of tropospheric ducting, public safety personnel are not able to communicate amongst themselves or with their dispatchers. Because of this deficiency, it is not appropriate for the County to spend \$600,000 in public money to narrowband the Channel 20 frequencies that are associated with this failed UHF T-Band communications system when the public would be better served if the County could invest its personnel resources and limited funds into the design, construction and implementation of a new 700 MHz narrowband public safety communications system that is not fraught with the interference issues that have beset the County’s existing UHF T-Band public safety communications system.

Approximately 15 years ago, the County established its simulcast UHF T-band trunking system in order to provide ubiquitous communications for the County and its constituent public safety agencies. Since the system was placed in service, it has repeatedly received harmful interference from station WCCT-TV in Waterbury, Connecticut and WCVB-DTV in Boston, Massachusetts during periods when atmospheric ducting conditions exist. This ducting interference is much more severe on the Channel 20 allotment licensed to the County than on its the frequencies associated with the Channel 15 allotment. Ocean County’s UHF T-band facilities are prone to ducting interference because of the County’s proximity to the Atlantic Ocean. The completion of the DTV transition (and the elimination of analog television signals) exacerbated the interference issue since digital transmissions differ from analog signals in that they affect all of the County’s frequencies in the Channel 20 allotment, rather than just a portion at a time. Because Ocean County is subject to natural disasters and is a natural evacuation destination for both New York City and Philadelphia, it is critical that the County have a public safety communications system that is not subject to harmful interference from atmospheric ducting events.

Because of these interference issues, the County has determined that its only reasonable alternative is to transition its trunked operations from the UHF T-band Channel 20 allotment to the 700 MHz public safety band. In making this determination,

Ocean County has been at the forefront, making its application to Region 28 at the first opportunity possible. Currently, its applications for authority to construct and operate its trunked 700 MHz communications system are pending before the FCC. The estimated cost of this system to the tax payers of Ocean County will be \$21 million over the course of five to six years. This system will be comprised of 11 frequency pairs at seven transmitter sites and serve in excess of 4,300 mobile units (vehicular and hand held). The installation of this system involves not only the replacement of fixed repeaters, mobile units, antennas and other associated equipment, but the replacement of 17 dispatch consoles and the installation of a Motorola P25 Core. In order to fund this expansive project, the County must include it in its 6-year Capital Improvement Plan (“CIP”), starting with FY2012 that commences on January 1, 2012. Nonetheless, because of the size and scope of the project, it will need to be included in the County’s six-year CIP that is approved by the Board of Freeholders as part of each annual budget cycle so that the appropriate budget and appropriation can be made in the relevant fiscal year to authorize the procurement of each phase of the 700 MHz project. Inasmuch as the County has determined that it will take upwards of five years to complete the 700 MHz project, the public interest would be served by a grant of the waiver request for the anticipated five-year construction period.

As discussed above, the estimated cost to narrowband the County’s UHF T-Band Channel 20 allotment is \$600,000. Given the economic climate and its negative impact on state and local government tax collections – and hence, state and local government budgets, an unnecessary expenditure of \$600,000 to narrowband the Channel 20 UHF T-Band system is not in the public interest. This is because the County’s scarce revenue dollars and personnel resources can be put to better use if they were directed toward the 700 MHz project rather than narrowbanding a communications system that is ultimately going to be scraped because it is prone to harmful interference from atmospheric ducting for hours at a time.

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WAIVER REQUEST

Ocean County, New Jersey (“Ocean County” or the “County”), hereby requests, pursuant to Section 1.925 of the Commission’s Rules and the instructions contained in the Commission’s Public Notice released July 13, 2011 entitled “Wireless Telecommunications Bureau, Public Safety and Homeland Security Bureau, and Office of Engineering and Technology Provide Reminder of January 1, 2013 Deadline for Transition to Narrowband Operations in the 150-174 MHz and 421-512 MHz Bands and Guidance for Submission of Requests for Waiver and Other Matters” (DA 11-1189), a waiver of Section 90.209 (b) of the Commission’s Rules to continue wide-band operations on its Channel 20 UHF T-Band frequencies authorized under the licenses for Public Safety Pool Service stations WIL552 and WPXC650 (as specified in Attachment A hereto) until the fifth anniversary of the grant of its licenses in the 700 MHz Band.¹

¹ See ULS File Nos. 0004896715 and 0004896716. Ocean County will be requesting authority to construct its 700 MHz public safety communications system pursuant to an extended implementation schedule that is approved by the Commission. The County’s planned extended implementation schedule contemplates that it will take upwards of five years from the date of license grant to plan, construct and implement its new 700 MHz public safety

In support hereof, the following is shown:

Waiver Standard

The grant of the instant waiver request is in the public interest and is supported by Section 1.925(a)(3) of the Commission's Rules.

Rule Section 1.925(a)(3) provides, in pertinent part, as follows:

The Commission may grant a request for waiver if it is shown that:

- (i) The underlying purpose of the rule(s) would not be served or would be frustrated by application to the instant case, and that a grant of the requested waiver would be in the public interest; or
- (ii) In view of unique or unusual factual circumstances of the instant case, application of the rule(s) would be inequitable, unduly burdensome or contrary to the public interest, or the applicant has no reasonable alternative.

As demonstrated below, Ocean County meets the latter standard due to the unique circumstances caused by tropospheric ducting which renders its existing UHF T-Band public safety communications system (and the Channel 20 frequencies in particular) unusable for hours at a time. During times of tropospheric ducting, police officers, fire fighters, EMS personnel and other public safety personnel are not able to communicate amongst themselves or with dispatchers. As a result, in the event of an emergency, a police officer, firefighter or EMT may not be able to obtain life-saving assistance. Because of this deficiency in its existing public safety communications system, it is not appropriate for Ocean County to expend \$600,000 in public money to narrowband the Channel 20 frequencies associated with this failed UHF T-Band communications system

communications system, and then migrate its users from the existing UHF T-Band system to the new 700 MHz system.

when the public would be better served by putting those funds towards the design, construction and implementation of a new 700 MHz narrowband public safety communications system that is not fraught with the interference problems that have beset the County's existing UHF T-Band public safety communications system.

Background

The County is the second largest county in the State of New Jersey in land area and is one of four counties located along New Jersey's Atlantic Coast. Ocean County's 2010 population was 576,567, which represents a 33.11 percent increase from the 1990 census of 433,203.² During the summer months, the population in Ocean County increases by approximately 200,000 from its year-round population due to the influx of vacationers visiting its beaches and other tourist attractions. The County is home to two military installations (Naval Air Engineering Station Lakehurst and portions of Fort Dix, New Jersey) and the Oyster Creek Nuclear Power Plant. Portions of two major interstate highways, as well as the Garden State Parkway, traverse the County.

Narrowbanding the UHF T-Band Channel 20 Facilities is Impractical Due to Continued Interference from Tropospheric Ducting.

Ocean County established its simulcast UHF-T band trunking system approximately 15 years ago in order to provide ubiquitous communications for the County and its constituent public safety agencies which include: (a) 23 local fire departments, (b) 9 municipal police departments, (c) 12 local EMS agencies, (d) the County Sheriff's Office, (e) the County Prosecutor's Office, (f) the County Homeland

² Census 2010, US Census Bureau, November 2011; 1990 Census of Population and Housing, Historical Population Counts and STF-1A (Profile 1).

Security Office and (g) the Countywide Strike Force.³ Ocean County's UHF T-Band system is currently licensed by the FCC under Trunked Public Safety Pool Service stations WIL552 and WPXC650, and operates on frequencies within the UHF T-Band Channel 15 and Channel 20 allotment.⁴ Since the system was placed in service, it has repeatedly received harmful interference from station WCCT-TV in Waterbury, Connecticut and WCVB-DTV in Boston, Massachusetts during periods when "atmospheric ducting" conditions exist. While this interference affects the frequencies associated with both the Channel 15 and 20 allotments, it is much more severe on the Channel 20 frequency allotment.

Because Ocean County is located along the Atlantic Ocean, its UHF T-band radio system is especially prone to harmful interference from neighboring television stations (such as WCCT and WCVB), due to tropospheric ducting interference. Minimizing such interference to the County's public safety communications systems has been a critical issue for the County, since it is subject to hurricanes and other severe weather events that can place a strain on the County's public safety resources. In addition, the Ocean County's proximity to both New York and Philadelphia make it a natural evacuation route in the event of a natural disaster or terrorist attack in either of these major cities. Therefore, it is critical that Ocean County and the communities in and around it have effective, interoperable public safety communications at all times.

³ The Countywide Strike Force is an operational division of the County Prosecutor's Office and is responsible for combating narcotics rings and other criminal activities requiring a coordinated law enforcement response.

⁴ Ocean County operates the 11 of the Channel 20 frequency pairs in a trunked manner and the Channel 15 frequencies in a conventional manner. The conventional Channel 15 frequencies are used as a back up to the trunked Channel 15 system.

With the completion of the DTV transition and the elimination of analog television signals, the interference problem has become significantly worse than it had been previously. The interference from DTV stations is more severe than the former analog interference because digital transmissions differ from the analog signals, and affect all of the County's frequencies in the Channel 20 allotment simultaneously; thereby rendering the Ocean County's entire UHF T-Band trunking system using the Channel 20 allotment inaccessible to its public safety users for significant periods of time. Because WCCT's digital transmitter is located 112 miles away in Waterbury, Connecticut, a location much closer to Ocean County than the WCVB-DTV transmitter in Boston, the interference to Ocean County's co-channel public safety land mobile radio operations is much worse than it was prior to the DTV transition. This is due to the nature of tropospheric ducting, "which enables broadcast signals to carry significantly longer distances over bodies of water than normally would be expected." *See e.g.* Copeland Channel 21, LLC, Letter from Barbara Kreisman to Lauren Colby, DA 05-1551 (Released June 1, 2005) at 2. Since Ocean County is on the Atlantic Ocean and Waterbury, Connecticut is north of Long Island Sound, the signal from Station WCCT's digital transmitter is carried across Long Island Sound and down the Atlantic Coast to Ocean County's co-channel radio facilities. As a result, during periods of tropospheric ducting interference, Ocean County's trunked UHF T-band system is unable to provide public safety communications.⁵

⁵ The interference situation in Ocean County is well documented. The County has reported this interference to the Commission and the Association of Public-Safety Communications ("APCO") by letter dated July 23, 2002. Additionally, by letter dated December 2, 2003, the County notified the Commission of a significant DTV

The Channel 20 UHF T-Band System is a Complex System and it is not Cost Effective to Narrowband.

Ocean County's Channel 20 UHF T-Band System is a large, complex system that does not lend itself to being narrowbanded in a cost effective manner. Ocean County is operating on 11 trunked channel pairs and five conventional channels at eight discrete fixed locations through out Ocean County, New Jersey. The County has 4,000 mobile units comprised of vehicle mounted units and hand held portables. Narrowbanding these radios will be extremely time consuming and expensive in that radio technicians must physically modify each and every radio in order to accomplish the narrowbanding. Ocean County believes that narrowbanding will provide no affirmative benefit to the County and its public safety users due to the interference issues described above, but instead will unduly strain the County's scarce resources that could otherwise be put to better use.

Ocean County's Only Reasonable Alternative is to Migrate its Public Safety Communications System from the Channel 20 UHF T-Band Allotment to the 700 MHz Band

Ocean County has made a concerted effort to be at the forefront of making its transition from the UHF-T Band – which, as described above, is prone to significant interference from tropospheric ducting – to the 700 MHz band.⁶ Because the 700 MHz

interference event that had occurred on Monday, November 23, 2003. In that instance, the County indicated that the measured DTV signal levels were 25 – 30 dB above the normal background noise floor; thereby adversely affecting public safety systems through out southern New Jersey as well as Jackson Township and Burlington County, New Jersey.

⁶ Ocean County has considered public safety allocations in the VHF, UHF, 800 MHz and NPSPAC public safety spectrum. However, based upon studies that have been conducted by its engineering firm in connection with its waiver request to license the Channel 15 of the UHF T-Band, there was not sufficient spectrum that could be licensed at all of Ocean County's sites. See *Ocean County, Request for Waiver of Sections 90.303, 90.305, 90.307, 90.309 and 90.311 of the Commission's Rules*, Order (DA 09-1976) (Rel. PSHS Aug. 31, 2009).

spectrum did not become available until well after the conclusion of the DTV transition, Ocean County was not able to begin making its move to the 700 MHz band sooner. As a result, the County took the necessary steps to make sure that its 700 MHz applications were filed during the first filing window established in Region 28. In June, 2010, the County promptly submitted its 700 MHz applications to Region 28 for coordination. These applications cleared coordination with Region 28 in July, 2011, and were forwarded to APCO for frequency coordination. The applications were then filed with the FCC on October 3, 2011 in ULS under File Nos. 0004896715 and 0004896716. Ocean County expects that these applications will be granted during the first quarter of calendar year 2012.

The County has estimated that the cost of the new narrowband 700 MHz Public Safety Communications System will be approximately \$21 million over five to six years. The proposed narrowband 700 MHz Public Safety Communications System will be comprised of 11 frequency pairs at seven transmitter sites and serve in excess of 4,300 mobile units (vehicular and hand held). The installation of this system involves the replacement of not only the fixed repeaters, mobile units, antennas and other equipment typically associated with a radio system, it also involves the replacement of 17 consoles at the PSAP, EOC and a remote redundant location and the installation of the Motorola P25 Core with its associated Smart X device and switches and routers.

The County's Communications Division has commenced the process to include the 700 MHz Public Safety Communications System to the County's six-year Capital

Improvement Plan (“CIP”), starting with FY2012 that starts on January 1, 2012. In so doing, the project has been divided into four annual phases, as described below:

- **Phase I (\$4 million)** - Completion of System Design, Construction of the Motorola P25 Core infrastructure and associated switches and routers. Installation of 17 consoles at the County’s PSAP, EOC and a Redundant Location.
- **Phases II and III (\$15 million)** – Installation of 11 mobile repeaters at each of seven discrete transmitter sites, replacement of over 4,300 vehicular mobile units and hand held portables and associated infrastructure for charging of vehicle based hand-held portables and building based hand-held portables.
- **Phase IV (\$2 million)** – Dismantling of Channel 20 UHF T-Band trunked system and installation of mobile equipment (vehicular mobile units and hand-held portables for surrounding local municipalities that are able to opt into 700 MHz radio system).

The County’s proposed narrowband 700 MHz system is a highly complex and ambitious undertaking to bring a high quality communications system to its public safety users. Because of the size and complexity of the system, the cost is very high and requires budgeting and governing body approval over a series of years. For this reason, the project is in the County’s six-year CIP that must be approved by the County’s Board of Freeholders as part of each annual budget cycle so that the appropriate budget and appropriation can be made in the relevant fiscal year to authorize the purchase of each phase of the 700 MHz project.⁷ As a result, while the 700 MHz band is the County’s only realistic alternative for a reliable communications system, a waiver of the narrowbanding requirement during the time required for the construction and implementation of the new narrowband 700 MHz public safety communications system is necessary. Based upon the size and complexity of the system, a five year time-line for

⁷ It is also important to note that because Ocean County is a local government, it must also comply with procurement regulations and statutes, which likewise will add time into the project time-line.

the build-out of this system is not unreasonable. Accordingly, a grant of the instant waiver request for the anticipated five-year construction period would be in the public interest.

Narrowbanding the Channel 20 UHF T-Band is Not a Good Use of \$600,000 in Public Monies.

The Commission can take official notice that the Great Recession and its aftermath have placed great strains on state and local government budgets as they have been forced to trim costs in order to close budget short-falls since tax revenues have sharply declined. Ocean County is no different, having seen a significant decline in tax collections due to decreased real estate values and less spending by visitors at its beach resorts and other tourist attractions.⁸ Nonetheless, in 2009, Ocean County took the proactive step of modifying the licenses for Trunked Public Safety Pool Service stations WIL552 and WPXC650 to add the narrowband emission designator as well as an additional narrowband emission designator. This action was taken at a time when Ocean County was not sure when the 700 MHz band might actually become available for public safety use, and the County was able to complete the narrowbanding of its Channel 15 UHF T-Band system – which system will be retained for interoperability purposes to supplement the 700 MHz public safety communications system.

In 2010, Region 28 opened a filing window – in which Ocean County participated. At this point, some 18 months after the opening of the 700 MHz narrowband filing

⁸ It is also important to note that local governments also rely on state and federal funding. However, the same economic pressures experienced by localities such as Ocean County have only been exacerbated by the economic pressures on the state and federal governments. As a result, Ocean County has fewer state and federal dollars available to it to meet its financial obligations and must instead rely more and more on locally generated revenues.

window, Ocean County still does not have the licenses for its proposed 700 MHz Public Safety Communications System. Rather, its applications are pending before the FCC, with an expected grant sometime in early 2012.

As discussed above, Ocean County's UHF T-band public safety communications system is prone to tropospheric ducting interference, which makes the system unavailable to the County's public safety workers for hours at a time. This has caused the County to make a serious evaluation of its existing system and the alternatives that might meet the County's public safety communications needs. As a result of this evaluation – and results of significant lobbying by the County of the Commission's staff regarding the ducting interference issue, the County determined that it would be best served by the ultimate abandonment of the Channel 20 UHF T-band in favor of the 700 MHz band. As a result, the County cannot justify the cost to taxpayers, which is in excess of \$600,000, to narrowband its Channel 20 UHF T-Band facilities due to (a) the ducting interference issues and (b) its plans to migrate its public safety communications system to the 700 MHz band as rapidly as possible.⁹ Accordingly, the public interest would be best served by allowing the County to make the best use of its scarce and limited financial resources to procure and install its proposed 700 MHz public safety communications system,

⁹ With the exception of the frequency pair 508.1875/511.1875 MHz, Ocean County will return its entire allocation of the Channel 20 UHF T-Band allotment that is authorized under the licenses for stations WIL552 and WPXC650. The County will retain, however, the Channel 15 UHF T-Band allotment that has been authorized under the licenses for stations WIL552 and WPXC650 so that it can maintain interoperability with surrounding cities and towns that do not migrate to the 700 MHz band because of the high cost involved. Ocean County recognizes that this interoperability capability will be limited by the effects of ducting interference – an issue that it can do nothing about, beyond the steps it will have taken to migrate its day-to-day public safety system to the 700 MHz band. The County has already narrowbanded the Channel 15 UHF T-Band allotment and will narrowband the frequency pair 508.1875/511.1875 MHz during the third quarter of calendar year 2012.


without having to budget and appropriate \$600,000 to narrowband a UHF system that will ultimately be turned back to the Commission.

Conclusion

For the foregoing reasons, it is respectfully submitted that a grant of the instant waiver request would serve the public interest by permitting Ocean County to devote its personnel and financial resources to the replacement of the Channel 20 UHF T-Band system rather than expending significant time and financial resources to narrowband a system that will be scraped in the next few years due to its unsuitability as a public safety communications system.

Respectfully submitted,

OCEAN COUNTY, NEW JERSEY

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